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JEFFERSON CIRCUIT COURT

DIVISION NINE

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BROWN & WILLIAMSON :

TOBACCO CORPORATION, :

Plaintiff, :

vs. : Case No. 95-CI-06560

JEFFREY S. WIGAND :

Defendant. :

- - - - - --

The videotaped deposition of Jeffrey S. Wigand, the Defendant herein, was taken before Special Commissioner Richard A. Revell, and reported by Thomas F. Runfola, a Registered Professional Reporter, pursuant to notice, at the offices of Middleton & Reutlinger, 2500 Brown & Williamson Tower, Louisville, Kentucky, on Tuesday, July 16, 1996, at 1:00 o'clock p.m.

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VOLUME 4

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APPEARANCES:

Wyatt, Tarrant & Combs
400 South Fourth Avenue
2500 Brown & Williamson Tower
Louisville, Kentucky 40202
By Mr. James E. Williams,

and

King & Spalding
191 Peachtree Street
Atlanta, Georgia 30303
By Mr. Gordon A. Smith and
Mr. William C. Hendricks, III,

and

Chadbourne & Parke
30 Rockefeller Plaza
New York, New York 10012
By Mr. David L. Wallace, and
Mr. Bruce C. Sheffler

and

Parker & O'Connell
Suite 1540
Providian Center
400 West Market Street
Louisville, Kentucky 40202
By Mr. Michael J. O'Connell,

On behalf of the Plaintiff

Mobley, Johnson & Ervin
Suite 400
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Louisville, Kentucky 40202
By Mr. Joseph W. Mobley,

and

Shea & Gardner
1800 Massachusetts Avenue, N.W.
Washington, DC 20036
By Mr. John D. Aldock and
Ms. Laura S. Wertheimer

On behalf of the Defendant.

ALSO PRESENT:

U.S. Department of Justice
Criminal Division, Fraud Section
1400 New York Avenue, N.W.
Washington, DC 20035
By Mr. Jimmye S. Warren

and

Brown & Williamson
Tobacco Corporation
2600 Weaver Road
P.O. Box 1036
Macon, Georgia 31298
By Scott Appleton, Ph.D.

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JEFFREY S. WIGAND,
having been previously sworn, as hereinafter certified, deposes and says as follows:

THE VIDEOGRAPHER: Back on the record, the time is approximately 1:04 p.m.

EXAMINATION

BY MR. SHEFFLER:

Q. Mr. Wigand, good afternoon.

A. Good afternoon. How are you? I guess this morning, you kind of challenged me to identify a document or documents that may substantiate the deletion or vetting of the words safer and less hazardous, particularly after the Vancouver meeting.

And what I would like to do is direct you to, I believe, a document that we produced in discovery, which describes such a meeting that was held in New York on -- in January of 1990 which talked specifically about the lawyers vetting minutes. I believe you have that in production.

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Q. Well, sir, you can go ahead and make your statement. Go ahead.
A. I'm not making any statement. You asked me and challenged me at lunch -- before lunch, you called me a liar this morning, and you asked me to recall -- I think that's what you intimated. I will take it as that. To recall any document that I may have been familiar with, during my course of employment at Brown & Williamson, that demonstrated that the word safer and less hazardous was removed systematically and vetted from the meetings and minutes.
Q. This was a document you produced?
A. It's a document I produced to you.
Q. Who created it?
A. Who created it? I don't know who created it.
Q. You don't know who created it?
A. I believe the attorneys created it.
Q. You believe the attorneys

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created it?
A. Yeah.
Q. Now, sir, what does that mean, is that belief have any factual basis?
A. I was at the meeting.
Q. Okay.
A. And it was handed out by attorneys.
Q. Who was at the meeting with you?
A. Kendrick Wells, other scientists.
Q. Who?
A. Alan Heard, Erwin Kusch, outside counsel for BATCF. I produced the document for you.
Q. Outside counsel for BATCF?
A. B.A.T. Cigarette and Fabrika.
Q. Okay. That's a German subsidiary?
A. Yes.
Q. Where was this meeting?
A. It was held in New York in January of 1990. I believe it was the 17th. I think I produced the document to

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you in discovery.
Q. We will check for it, sir. Can you give us any other names of people who were there?
A. I believe Stewart Shelton, Chelton; I'm not.
Q. It had words safer cigarette or less hazardous cigarette?
A. What it did was it establish the policy by which there was a systematic vetting of documents by the attorneys. I think, if you get the document out, we can go through it.
Q. What does vetting mean?
A. Remove.
Q. Remove. Okay. But anyway, you have -- you have a document that you say took place -- of a meeting that took place on January 17th, 1990, that demonstrates the words safer cigarette or less hazardous cigarette were removed?
A. I think what it does is it demonstrates a practice directed by the attorneys to remove, after the Vancouver

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meeting for scientists, the language safer or less hazardous cigarettes.
Q. So this document -- I will look for it -- says that the language safer or less hazardous was removed or should be removed from the document?
A. No, it established a procedure for the contentions words. I think if you get the document, I can speak more specifically about it.
Q. How many documents did you produce in this case?
A. I don't know.
Q. Where did you get this document?
A. Where did I get this document?
Q. Yep.
A. From B & W.
Q. You got it from B & W?
A. Yeah, I turned it over to Mr. Patton, I believe, when my CID was presented in 1994, and I think Mr. Patton has that document.
Q. You turned this over to Mr. Patton in 1994?

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A Yes.
Q So Mr. Patton gave it back to you?
A No, also my attorneys had it.
Q So you got it from your attorneys?
A Mr. Ethridge.
Q Okay. So you produced this document pursuant to CID?
A I turned it over to Mr. Patton, and I believe in Mr. Wells' conversation last week, he definitely discussed that he had reviewed the document with Mr. Patton.
Q My question, sir, was, did you turn this document over to the CID?
A I believe I did.
Q Okay. So it was a document produced in the CID?
A Yes, or it may have been produced.
Q Pardon me?
A Or may have been produced. I haven't seen -- I haven't seen what documents I produced back to me with the

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CID.
Q Okay. All right sir. Pardon me.
A Can we address you that now, or do you want to wait for another time?
Q The way it works, Mr. Wigand, just so you know, I ask questions.
A You did. You asked me a question this morning. You asked me and challenged me this morning to think of a document that demonstrated how the company agreed to systematically vet minutes and remove contentious words, safer cigarette, hazardous cigarette.
Q So you reviewed these documents over lunch, sir?
A No, I didn't. I didn't see any documents during lunch.
Q Okay, okay.
A You asked me -- you challenged this morning to think about it.
Q Who did you meet with over lunch?
A Who did I meet with over lunch?

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My attorneys.
Q Anybody else?
A No.
Q Nobody but the two attorneys sitting here in the room?
A And another attorney, Mr. Motley.
Q Mr. Motley is your attorney?
A Yes, he is. I think I told you that yesterday.
Q Oh, yesterday Mr. Motley said he was not your attorney --
THE COURT: No, no. Wait a minute.
Q -- in this case.
THE COURT: Motley and Mobley are two different people.
MR. SHEFFLER: Okay.
THE COURT: Motley -- he's talking -- I think you are speaking of Joe Mobley.
A Mr. Mobley is my attorney in this litigation, specifically in the suit with Brown & Williamson. Mr. Motley is also my attorney for personal matters.

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Q Did you meet with Mr. Motley over lunch?
A He was in and out. I did not meet with Mr. Motley.
Q Was he there during lunch?
A He was in and out. I did not discuss the matter with him.
Q You didn't discuss the matter with him, sir?
A No, I discussed it with my attorneys.
Q Okay. All right.
A Do you not want to discuss that document now?
Q I don't have the document in front of me, sir. We will look for it. We will discuss it?
A Okay. I just want to make sure that I --
Q I want to make sure that your representations that the words less hazardous or safer cigarette were designated to be removed before I discuss it with you further.

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MR. ALDOCK: That wasn't his representation.
THE WITNESS: That wasn't my --
Q Well, that's what we were discussing this morning, wasn't it?
A. No. You asked me --
Q -- whether you had the document that said safer cigarette or less hazardous was removed. That's what we were talking about.
A. No. You asked me could I recall ever after the Vancouver meeting. This document demonstrated systematic process by which the lawyers told the scientists what to write and what not to write.
THE COURT: May I clear it up or try to? Dr. Wigand, if I understand correctly, you are saying that in the course of this litigation, it was furnished to the other side by discovery.
THE WITNESS: That is correct.
THE COURT: Did not you keep a copy of it? Don't you have a copy now of what was furnished to them? What I am

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thinking is rather than putting the burden on them to search for a document that you are describing, can't you find the document?
MR. ALDOCK: We didn't bring the production to Louisville. We could certainly get it faxed.
THE COURT: Because they have to look for something they don't know what it is. He knows what he's talking about.
THE WITNESS: Can I bring it tomorrow, Judge?
THE COURT: I'm not saying --
MR. ALDOCK: The fax number is 502-561-0442.
THE COURT: I would the think the burden should be on you. One at the time, please. The court reporter can't keep up with all this.
I would think the burden should be on you to find a document rather than making them look through everything for something that they don't -- you are describing it.

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A. I will try to produce the document. Can I produce it tomorrow, sir? Or later today?
THE COURT: Do you have it here in Louisville? Do you have it with you?
MR. ALDOCK: We will certainly have it tomorrow.
THE COURT: All right.
Q. Let's go back to what we were talking about this morning, sir, the design of cigarettes. We were talking a bit thus morning about -- we talked about Airbus that was an alternative engineered product. We talked about that, do you recall that?
A. A design of cigarettes? Broadly, yes.
Q. Okay. Now, isn't it true, sir, that there has been a tremendous amount of time and effort in the attempt to characterize smoke constituents that were suspected to be related to certain diseases, even before you started --
A. Are we talking about smoking and

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health issue or design of cigarettes?
Q. Well, answer my question first. I'm trying to show you where we are going. We are going to be talking about cigarette design, and part of that is based upon the constituents of smoke; isn't that true?
A. Design of cigarettes? Yeah, there is a direct relationship with design and constituency of smoke.
Q. Isn't it true, sir, that even before you had been at B & W, there had been a tremendous amount of time and effort spent trying to characterize the smoke constituents that were suspected to be associated with certain diseases?
A. From time to time, I was provided reports that had been produced prior to my employment, and from time to time, I was prohibited from seeing reports produced prior to my employment at B & W.
Q. Is the answer to my question yes or no?
A. Yes. I can't give that as a comprehensive. From what documents that I

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was allowed to see, yes.
Q. The documents you were allowed to see?
A. Allowed to see.
Q. Did you ever make a search of B & W's computer database?
A. I asked for documents relating to project Hippo that I was never able to receive.
Q. Did you ever ask the library to do a search --
A. No. I asked Kendrick Wells, and I asked my management for those.
Q. Excuse me, sir. Research projects were kept in a library at R & D; were they not?
A. Some were, some weren't.
Q Did you ever ask the librarian to do a search for project Hippo?
A. I may or may not have, I don't recall that. But I recall distinctly asking my management about project Hippo and the law department.
Q Did you ask the librarian who

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would have the research, if it was in the library, on project Hippo -- did you ever just ask her to do a search and see as if it was there?
A. I may have, yes.
Q. If the librarian says that you never did that, would she be wrong?
A. Why don't we get that affidavit as you desire?
Q. Sir, I have it right here.
A That I never asked for any kind of literature search?
MR. SHEFFLER: Would you mark that, please.
- - - - -
Thereupon, Wigand Exhibit No. 29 was marked for purposes of identification.
- - - - -
Q. Mr. Wigand, Carol Lincoln was the librarian at the R & D department when you were there?
A. She was one of the librarians.
Q Let me show you what we have

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marked as Deposition Exhibit Wigand 29.
Do you see that this is an affidavit by Carol Lincoln being duly sworn, deposes and says. And if you notice on page 3, there is her signature; is it not?
A. Is Carol Lincoln still a B & W employee?
Q. Sir, I really am not supposed to answer questions, but just for your information, I really don't know.
MR. APPLETON: She is.
Q. Sir, let me direct your attention to paragraph three. Does it not state, "To my knowledge, Jeffrey S. Wigand never requested that I conduct a search, either manually or by online computer, to determine whether B & W maintained research reports generated in the 1950's through the 1970's, including research in connection with nicotine or its effects on the human body.
"He rarely requested research reports at all, and when he did, he asked

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for material prepared from 1987 forward. If he had requested any particular research report in the library or he requested all the research reports in the library on any particular topic, it was my job to provide the responsive reports to him, and I would have done so."
Now, is Carol Lincoln accurately stating the facts at the time?
A. No.
Q. She is a liar?
A. That's your characterization, not mine.
Q. Well, is she speaking something that's untrue?
A. I believe so.
Q. Okay. So this is a lie?
A. If you want to characterize that as a liar -- or a lie, that's your words not mine. Is Carol Lincoln the only person that is in the library?
Q. Well, who else is in the library?
A. I believe Joan Unsel is in the library.

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MR. SHEFFLER: Would you mark this, please?

- - - - -

Thereupon, Wigand Exhibit No. 30 was marked for purposes of identification.

- - - - -

THE COURT: Do you want the witness to have this?

Q. Do you see, sir, what I have handed you is an affidavit of Joan Unsel; is that correct? Is that correct?

A. I believe so.

Q. We have marked that as Deposition Exhibit what?

A. 30.

Q. Do you see her name signed at the end of the page?

A. Um-hum. Yes, I do.

Q. Okay. Do you see Joan Unsel being duly sworn and disposes and says, "I am the technical information assistant at Brown & Williamson Tobacco, Research and Development Department, R & D library. I

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have had that position since 1979. I am and have been for that time responsible for, among other things, for maintaining responding B & W's and its affiliates research reports and responding to research requests for the personnel of the R & D department." Do you see that, sir?

A. Uh-huh.

Q. Two, "The research reports contained in the library cover a great range of products and date back to the 1930's. The reports number in excess of ten thousand." Do you see that?

A. I read it, yes. It seems like the identical same language.

Q. Do you see paragraph 3, sir?

A. Uh-huh.

Q. "To my knowledge, Jeffrey S. Wigand never requested that I conduct a search, either manually or by online computer, to determine whether B & W maintained research reports generated in the 1950's to the 1970's, including research in connection with nicotine or

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its effects on the human body. He rarely requested research reports at all, and when he did, he asked for material prepared from 1987 forward.

"If he requested any particular research report in the library or had requested all the research reports in the library on any particular topic, it was my job to provide the responsive reports to him, and I would have done so."

That's exactly what Carol Lincoln said, too.

A. Did she produce this from a log?

Q. Sir, are you calling Miss Unsel a liar, too?

A. I asked, did she produce this from a log or is this from her memory?

Q. Is it true or is it untrue?

A. I will contest it. I don't believe it's true.

Q. Okay. So you are calling Miss Unsel a liar?

A. No, you are. I'm saying her memory may not be correct.

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Q. Okay.

A. Did she construct this from a log?

Q. All right, sir. Let's go on to my first question. Isn't it true that a tremendous amount of time and effort had been spent before you got to B & W on the smoke constituents that were suspected to be associated with disease?

A. What is a tremendous amount of time? How many man-hours are we talking about; over what period of time?

Q. Let me show you, sir, the 1989 Surgeon General's report.

A. You are talking about B & W, excuse me. Can you produce B & W documents or B.A.T. documents?

Q. Pardon me?

A. Are you going to produce B & W or B.A.T. documents?

Q. I'm going to show you the 1981 Surgeon General's report which was in the library at B & W if you wanted to go look at it.

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A. And I never looked at it?
Q Oh, you did look at it? Did you?
A Yes.
Q Oh, good.
THE WITNESS: Do you want to label this as an exhibit?
THE COURT: He hasn't asked for it yet.
MR. SHEFFLER: I want to read certain sections of this report, your Honor. I think, rather than put the whole report in as an exhibit, we will put in the excerpts that we use.
THE COURT: Okay.
MR. SHEFFLER: We will mark this as Deposition Exhibit 31.
- - - - -
Thereupon, Wigand Exhibit No. 31 was marked for purposes of identification.
- - - - -
Q. Mr. Wigand, would you turn to page 13, please.

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A. Thank you.
THE COURT: Do you want to check the exhibit against what he reads?
MS. WERTHEIMER: I would like to, thank you very much.
Q. Do you see in the second paragraph the statement, "A tremendous amount of time and effort has been spent to characterize cigarette smoke and to identify disease producing smoke constituents." Do you see that, sir?
A. It says a first approach is that of -- is constituent toxicology, yes. Then I see a tremendous amount of time.
Q Okay. When you read this report, sir, what did you think the Surgeon General meant when he said, a tremendous amount of time and effort has been spent to characterize cigarette smoking and to identify disease producing smoke constituents?
A. I would imagine in 1981 he was reflecting what had transpired before 1981.
Q. Okay. And was that a tremendous

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amount of time and research?
A. I have no idea what that word meant, tremendous.
Q. You don't know what tremendous means?
A. What does it mean? In the context of --
Q. Well, the American Heritage Dictionary, sir, has a definition of tremendous. Tremendous --
A. I think approximately 70 percent of chronic obstructive lung disease -- that's not attributed to cigarette smoking?
Q. Excuse me, sir. Excuse me, sir.
A. You want me to just take this out of context.
Q. No, I don't.
A. That's what you are doing. You are asking me to take things out of context.
Q. I'm trying to give you the definition of tremendous.
A. Give me tremendous.

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Q. Tremendous, according to the American Heritage College Dictionary, is extremely large in amount, extent, or degree; enormous. Would you agree that that's the definition of tremendous?
A. I will trust your reading.
Q. Would you agree that there was an extremely large amount or enormous amount of research done in smoke constituents before 1981?
A. Based on this, tremendous, yes, a lot, yes.
Q. Would you agree also, sir, that in 1981 when this report was written, it was the position of the U.S. Government that there was no way to manufacture a cigarette that the U.S. Government would approve as safe?
A. Is this in the report, this report?
Q. Would you agree with that?
A. I don't know. Are we referring to this report, or are we now changing again?

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Q. Look at the -- okay, I will withdraw that question, sir. And ask you to turn to the very beginning of this document, the very beginning, the second page of the report.
A. I will refer you to page 9, okay, and I just kind of --
THE COURT: Dr. Wigand, he is asking questions. Follow please what he is asking you to do.
THE WITNESS: I'm sorry, Judge.
Q. If you would look at the very second page which is a letter from the secretary of Health and Human Services, Patricia Robert Harris. Do you have it there, sir? It's the very second page. Okay. Doesn't it state that scientists and scientific agencies of the U.S. HHS has reviewed all current scientific evidence and has concluded that the search for less hazardous cigarettes has not yielded a product which can be considered safe? Do you see that?
A. I'm reading it, yes.

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Q. That's what it says, isn't it?
A. That's what this document -- this is what that statement says.
Q. And that's the position of the government today; isn't it?
A. I don't know what the position of the U.S. Government is today.
Q. It was the position of the government when you were with B & W, wasn't it?
A. This is a 1981 document.
Q. Yes, I know, sir. This was a document that the Surgeon General wrote called The Changing Cigarette?
A. Okay. It's also the position of the government in 1989, '90 that nicotine was addictive.
Q. Sir, are we talking about the same thing? I'm asking you questions about a safe cigarette here. Okay. Now, the Surgeon General in 1981 had concluded, on the basis of a tremendous amount of time and effort spent trying to characterize suspected disease-producing

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smoke constituents, that reviewing all that scientific evidence, the search for a less hazardous cigarette has not yielded a product which can be considered safe; isn't that true?
A. I believe, as of 1991 -- or '81, that may be what this states.
Q. Okay. In fact, it is what it states.
A. I can take exception to that by just going -- leafing through the book.
Q. It is what it states on the letter of the Secretary of Health and Human Services, isn't it?
A. Well, why don't you let me read the whole letter. To take and pick out something out of context is inappropriate. You ask me to comment on it. If you are asking for me precise comment, I'm going to read the document beforehand.
Q. You mean to tell me --
A. If you want to stop me from reading the document --
Q. Do you mean to tell me, sir,

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that if I ask you anything from this '81 report, you are going to insist on reading the entire thing before answering me?
A. I'm going to ask to read before I comment. If you want a precise definition or a precise explanation from me, you are going have to allow me to refresh my memory and read it.
Q. Sir, you didn't know what the U.S. government's position was on a safe cigarette in 1988, '89, '90 and '91? Is that your testimony here today?
A. As a scientist, every scientist starts out with a hypothetical. It can be done given enough resources and technology. This is a 1981 report.
Q. Sir, my question to you is a simple one. In 1988, '89, '90 or '91, do you know what the position of the United States Surgeon General was on a safer cigarene?
A. On a safer cigarette or a safe cigarette?
Q. On a safe cigarette?

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A. Which is it?
Q. On a safe cigarette, sir.
A. I believe the government would never believe any cigarette is safe.
Q. And this includes the '81 report as well?
A. And I'm sure there are other scientific data that contributes or adds to that as we go forward. This is old data. Are we not allowed to refresh our memories with the current data?
Q. Do you think the 1989 report takes a different view?
A. I don't know. I want to finish 1981 first.
Q. Okay.
A. Are you going to let me read it or would you like me not to?
Q. My next question is on page 15.
A. I'm going to finish reading this first on page, the second page.
Q. You can read, but I have no question pending.
A. You asked me if there is a

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difference between safe and safer, I believe.
Q. I asked you, sir, what the position of the United States Government was in 1981 on safe cigarette.
A. I can tell you what it says now. I can read to you, but what you are doing is taking something out of context. Let me read it all to you.
Q. What is the position of the United States Surgeon General on a safe cigarette as of 1981?
THE COURT: Do you know, Dr. Wigand?
THE WITNESS: Do I know? I believe the government from time to time has said that there can be work done in terms of a less hazardous cigarette. I think this paragraph two in this document suggests that. I think some of the other --
THE COURT: What does it say?
A. Can I read it, sir?
In preparation of this report,

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scientists and scientific agencies and this department have reviewed all the current scientific evidence and have concluded that a search for less hazardous cigarettes has not yielded a product which could be safe.
Q. Go on?
A. The person who changes to a cigarette of lower measured yields may reduce certain hazards of smoking, but the benefits will be small compared to the benefits of quitting entirely.
Q. And hasn't that been the Surgeon General's position all the way up until today?
A. The most important conclusion of this report --
THE COURT: Dr. Wigand, there is a question on the floor. Has it not been the position of the Surgeon General up until today --
A. That there is nothing as a safe cigarette. Is there such a thing as ever a safe cigarette?

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Q. That's the question.
A. And I believe the government has probably consistently said there will be no such thing as a safe cigarette as well as the medical community.
Q. One of the reasons, sir, that the public community, the public health community, has concluded that it's impossible to make a cigarette safe is that the knowledge of the fundamental disease processes associated with smoking is quite limited; isn't that true?
A. And where are we reading this from?
Q. Isn't that true?
A. That could possibly be an explanation.
Q. Okay. You agree, sir, that the processes, the fundamental processes, associated with smoking -- of those diseases associated with smoking is quite limited?
A. In 1981?
Q. Today.

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A. No, I don't agree with that.
Q. Oh, we know the cause of cancer today? We know the cause of heart disease today.
A. We know there are relationships.
Q. Do we know the mechanism, sir?
A. Do we know the mechanism of carcinogenesis? Do we know the mechanism of mutagenesis? We have a very good handle, I think, on what the cause and relationship is between smoking and disease.
Q. Do we know the mechanisms of carcinogenesis?
A. I think there is reasonable and scientific expectations and understandings of that, yes.
Q. What, sir, in your view -- do you know about cancer, lung cancer?
A. In my view, yes, I know something about it.
Q. Okay. Do you know whether or not anyone has ever identified the genetic changes that occur in a cell to make it a

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cancerous cell?
A. Do I believe anybody has ever identified the -- the DNA?
Q. Yes.
A. I think there are a number of proven hypothesis that have been demonstrated.
Q. Okay. So, let me ask you which DNA -- strike that.
Which gene of the DNA is mutated to cause small cell carcinoma?
A. Which gene? I can't recall at this time.
Q. Has it been identified?
A. I cannot recall at this time.
Q. Sir, what are the four nucleotides?
A. Is this a chemistry quiz?
Q. No, I'm asking you about your -- you said had some knowledge about it. I'm trying to explore this.
A. Nucleotides or nucleosides?
Q. Nucleotides?
A. Nucleotides. Adenine, guanine,

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cytosine, thymine, and uracil.
THE REPORTER: I'm sorry. I need that answer.
A. Guanine, thymine, cytosine, and uracil. Please get the book.
Q. Those are four nucleotides found in the DNA?
A. Yes. There are five. Actually there are five found in DNA.
Q. Okay. Sir, let me ask you this question, have you ever heard of cytosine?
A. Yes.
Q. What is cytosine?
A. What is cytosine?
Q. What is cytosine.
A. It's a nucleotide.
Q. It's a nucleotide?
A. It's a nucleoside. I'm sorry.
Q. It's a nucleoside.
MR. ALDOCK: Your Honor, I'm happy to have him go forward, but I must say, I can't -- I'm not -- I'm at a loss to understand why this leads to discoverable evidence of any kind other

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than counsel is having a good time with his chemistry.
MR. SHEFFLER: Your Honor, here is the reason why it leads to discoverable evidence. This man has said that he knows about the mechanisms of carcinogenesis. He's said --
A. Cytosine is a nucleoside. I'm sorry.
Q. Okay. Fine.
A. So as adenine.
Q. Adenine is nucleotide or nucleoside?
A. Nucleoside.
Q. Adenine is a nucleotide?
A. Nucleoside.
Q. Okay. And you know which of those four nucleotides, that's "tides", T, that you have identified are pyrimidines?
A. Pyrimidines? Adenine and guanine.
Q. Okay. Now, sir, let me ask you --
A. How many hydrogen bombs go

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between, would you like to go into that?
THE COURT: No questions, please.
Q. Let me ask you, sir, which of those nucleotides, nucleotides, are mutated by carcinogens in cigarette smoke?
A. Which of those nucleotides? That assumes that a single nucleotide codes for a genetic happening.
Q. Which do code for genetics happenings?
A. That are triplets that code for genetic happenings.
Q. Which code for genetic happenings?
A. There is overlap, there is misread, there is mutation. There are a host of ways in which DNA is transcribed to translate incorrectly.
Q. Sir, do you know of any literature or research that has identified any specific smoke constituent that is responsible for a genetic defect that has been identified to cause cancer?

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A. In?
Q. In humans.
A. In humans. I thought any, I think mouse skin painting demonstrated --
Q. Demonstrated genetic defect?
A. No, mouse skin painting clearly demonstrated carcinogenesis on animals.
Q. We are talking about the mechanism of carcinogenesis.
A. Well, I think you would start with animals and work up with humans. Has there ever been a clinical trial with humans?
Q. Do you recommend one?
A. I don't think so.
Q. Okay.
A. To be very honest with you, Brown & Williamson did do clinical trials on humans while I was there, particularly with tainted cigarettes.
Q. Strike that.
Sir, do you have any evidence that the mechanisms of carcinogenesis have been described?

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A. Do I have any evidence? I would have to go back and research it and come back with it.
Q. Doesn't it say, sir, that the --
A. Are you relying just on 1981?
Q. That's right. I'm relying on the 1981 Surgeons General's report right now. At that time, the conclusion was that the fundamental disease process associated with smoking is quite limited. Do you know of subsequent research between 1981 and 1992 that would make that statement wrong?
A. I'm sure there is research, and at this time, I cannot recall all of it. I'm sure if you give me an opportunity. Again, I will come back to you with chapter and verse. I didn't come prepared for technological discussion. If you would like, I will accurately prepare something for you.
Q. Sir, would you agree that even after all of the tremendous research that had taken place prior to 1981, it was the

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conclusion of the Surgeon General at that time that our understanding of the specific etiologic mechanisms by which cigarette smoke constituents caused different disease remains incomplete? Would you agree with that?
A. Can you refer me to that page?
Q. It's at page 8. Under relative risks of lower-tar cigarettes for specific diseases?
A. I can read what's highlighted.
Q. Would you agree with that statement, sir?
A. In the context of one statement?
Q. "Our understanding of the specific etiologic mechanisms by which cigarette smoke constituents cause diseases remains incomplete at this time."
A. What does incomplete mean? They don't have a full understanding of it. I imagine we don't have a complete understanding of a lot of things. But the correlation between smoking and health is well-established and recognized by the

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world. The only people who don't recognize it is the tobacco industry.
Q. Would you agree, sir, that although many carcinogenic agents, have been identified in cigarette smoke, not a single component, not a single chemical agent or groups of chemical agents has been defined as solely responsible for the carcinogenic activity of cigarette smoke?
A. Does cigarette smoke only have one sole agent, or does it have many agents?
Q. Or even groups of agents?
A. Well, I think groups of agents. What about benzopyrene? Is that a carcinogenic substance? Have people removed it? Have people identified it as a carcinogenic substance?
Q. At the time -- can you answer my question. At the time that you were employed at B & W, isn't it true that the Surgeon General of the United States took the position that many carcinogenic agents have been identified, but no component, no

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groups of components, was responsible solely for the carcinogenic activity of cigarette smoke? That was the position of the Surgeon General, wasn't it?
A. When? 1981 or 1989 or 1994?
Q. 1988. Wasn't that his position?
A. I don't know what his position in 1988 was other than cigarette smoking is directly related to disease.
Q. Wasn't it the position of the Surgeon General as articulated in the 1988 Surgeon Genera's report that you have --
A. I have to refresh my memory again.
Q. Let's mark this as the next exhibit.

- - - - -

Thereupon, Wigand Exhibit No. 32 was marked for purposes of identification.

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THE COURT: Go ahead.
Q. Wigand Exhibit 32. Nicotine addiction and the report of the Surgeon

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General?
A. Um-hum.
Q. This is one report that you claim to have read?
A. Um-hum.
Q. When you read it, did you see under genotoxicity and carcinogenicity, the second sentence, which begins, "Many carcinogenic agents have been identified in cigarette smoke. However, not a single component nor chemical groups of components is solely responsible for the carcinogenic activity of cigarette smoke in the various organs."
A. I can read that statement, yes.
Q. Did you read that in 1988 when you joined B & W?
A. Probably read it before joining B & W. It was, it was a 1988 report.
Q. Was that an accurate reflection of the scientific literature at that time?
A. I mean, you're asking me to comment on a single line out of a thousand-page document. What do you want

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from me? Is that statement in there? Yes, that statement is there.
Q. Is that an accurate reflection of the scientific literature at that time?
A. All's I -- it may be. I can't tell you without reviewing the literature here. I mean, you're asking me to comment on a simple one-line sentence out of at least for this 604 pages of documents. I can't form a sole opinion on that.
Q. Sir, wasn't it the position and the conclusion of the public health community in the United States that there was no way to design or manufacture safe cigarettes by selectively removing certain constituents of tobacco because it was a very complex issue?
A. I don't think that was Gio Gori's position, who worked for the NCI.
Q. Gio Gori worked for NCI before 1981; did he not?
A. I'm not exactly sure what his tenure is, but I'm sure he worked for the NCI and one of his things was to chase a

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safer cigarette.
Q. Do you think that if Gio Gori had worked before the 1981 Surgeon General's report, they would have reviewed his research?
A. I would assume they had. I didn't prepare the document.
Q. Sir, would you agree that modifications affecting the concentration of one substance will also affect the levels of other substances as well in cigarette smoke?
A. And this is science dated when?
Q. 1981.
A. In 1981, that may have been a correct statement. Is that a correct statement today?
Q. Is it a correct statement in 1988?
A. It may have been.
Q. Is it a correct statement in 1992?
A. It may have been.
Q. Is it true as well, sir, that

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because of the complexity of cigarette smoke, the full impact of any cigarette modification on the composition of smoke in either absolute or relative terms can never be ascertained?
A. Can you give me the page?
Q. Page 50.
A. I will read page 50. Okay. I think I have the general gist of this paragraph.
Q. Okay. Isn't it true, sir, that what the general gist of the paragraph is if you modify one level, one substance, it will also affect levels of other substances?
A. Yes. And I believe also they state, for other reasons and for this reason, bioassays with appropriate end points are essential to determine the relative toxicities of new cigarettes.
Q And isn't that exactly --
A. Can I finish?
Q I'm sorry.
A And several modifications of

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cigarettes reduce the mouse skin carcinogenic activity of smoke condensate. These include the choice of leaf variety, use of reconstituted sheet, and the use of tobacco substitutes.
Q. Now, sir, isn't it true that B.A.T. Southampton was doing the exact type of research trying to look at smoke constituent modification while you were at B & W?
A. Are you referring to the program of other noxia?
Q. I'm referring to the Southampton research program.
A. On other noxia?
Q. I'm referring actually to the research and development program. This predates the FRC. This is October of 1989. You recall that at that time they were doing smoke constituent research?
A. I believe they were.
Q. And you recall at that time that they were finding that when they were doing smoke constituent research, changing

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one constituent may have impact on another constituent in an adverse way?
A. Yeah, I remember many, many tests and I can probably recount for you some of them and I would like to do that now.
I believe they also looked at cigarette design and they looked at the circumference based on biological activity and they found that as a circumference goes up, so does the biological activity.
Q. Um-hum.
A. They also found that as you increased the burley component of a blend, biological activity went up. I don't know if B.A.T. or anybody ever looked, with the exception of Imperial Tobacco in Canada, looked at the biological activity of whole cigarettes.
I believe, if you check carefully, you will find within the Batco records that they looked at biological activity of commercially available cigarettes and they found there were

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distinguishing qualities of biological activity which was related to exposure and health hazards, as I think is clearly stated in this document.
Q. Sir, did biological activity -- was it measured -- when you were at B & W, was there research ongoing, at Southampton, funded by B & W, to measure biological activity?
A. Of what?
Q. Of cigarettes and cigarette design modifications.
A. I believe it was – there was a limited amount of biological research on completed cigarettes. In fact, the work on completed cigarette was greatly discouraged by Brown & Williamson.
Q. The biological activity research went on throughout the time you were there; is that correct?
A. Are you talking about biological research in terms of methods development, or are you talking about the biological research as it relates to the smoke

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components or cigarette design?
Q. Well, let's do both. Isn't it true, sir, that biological testing and the investigation of biological tests for smoke constituents was ongoing throughout the time you were at B & W?
A. Never at B & W.
Q. Was it going on throughout the time of B & W, being funded by B & W at Southampton, which was the agency prepared and able to do such testing?
A. Yes.
Q. Okay. And that continued the whole time you were there?
A. It decreased; the effort and the input in it decreased.
Q. No one at B & W ever stopped that effort, did they?
A. No, but I'll tell you what they did. They stopped them, the reports coming to B & W.
Q. They stopped the reports coming to B & W about biological testing?
A. Yes.

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Q. When did they do that?
A. From time to time during -- after 1990 meeting. I routinely had faxes sent to me by Alan Heard asking me to comment on reports that would not be issued because the lawyers felt that biological activity would expose risk and litigation.
I believe, if we could go back to the January, 1990, minutes of the meeting in New York, I think you will find that that's pretty consistent.
Q. Did biological testing include bioassay, sir?
A. Biological testing is a very broad term.
Q. Does it include bioassay, sir?
A. It would include bioassays.
Q. I have a report here, sir, from the Fundamental Research Center.
A. Um-hum.
Q. Which is dated September – cover covers the period September '91 to April '92?

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A. Um-hum.
Q. All right. And I don't know how --
MR. SHEFFLER: Judge, I only have one copy of this report. Can I somehow go around the table to the witness?
THE COURT: Certainly. Do you want it marked first?
Is this the first one that you haven't gotten a copy of? I think it is.
MS. WERTHEIMER: We're missing several pages of one of these.
THE COURT: That's going to be the exhibit there instead of the book. And I thought he handed that to you.
MS. WERTHEIMER: It's all right. We are doing very well.
MR. SHEFFLER: I do have a copy, your Honor, we found one. We can make it an exhibit.
THE COURT: Stop and let him mark it.
- - - - -
Thereupon, Wigand Exhibit No. 33

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was marked for purposes of identification.

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THE COURT: Take a short break.

THE VIDEOGRAPHER: Going off the record. The time is approximately 1:50.

(Recess taken.)

THE VIDEOGRAPHER: Back on the record, the time is approximately 2:03.

BY MR. SHEFFLER:

Q. All right. Mr. Wigand, let me show you a document that we have marked as Deposition Exhibit Wigand 33.

First of all, sir, this was a document entitled Fundamental Research Center, work program covered the period September 1991 to 1992; did it not?

A. That's what the cover says.

Q. And sir, was this not a document that was provided to you?

A. I believe it was addressed to me, yes.

Q. Okay. This is a document that was addressed to you and was placed in the

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library at Brown & Williamson; is that correct?

A. That is correct -- well, I can say it was addressed to me. I don't know if it was placed in the library.

Q. Sir, let me direct your attention to page 77.

A. Again, what I would like to suggest is I can't comment on things I cannot read, actually. And I can't read the text here.

Q. Can you read the first title of the text in 77?

A. I can't even find page 77, so I'm going to --

MR. ALDOCK: It's a totally unreadable document. If you don't have a better copy, it won't work.

Q. I have a better copy.

MR. ALDOCK: You can see there is writing on the page, that's it.

Q Let me give you this.

THE COURT: We'd better remark then --

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MR. ALDOCK: You don't want to put the marking on that, it's worthless.

THE COURT: The first page is legible, so if we can switch this to the --

(Discussion held off the record)

Q. Now, Mr. Wigand, if you look at page 77 of the document, does it not say, Bioassay Research?

A. Okay. Yeah, I'm on page 77.

Q. Isn't that title of the research project that is abstracted there "Bioassay"?

A. I see that, yes.

Q. Okay. Sir, that was a bioassay test; was it not?

A. Well, the program objective, I believe, is to establish assays and evaluate the genotoxic responses of smoke.

Q. That was the project in 1991 to 1992, correct?

A. That's correct.

Q. So it was going on then, wasn't it, sir?

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A. I believe so.

Q. And, in fact, you got a copy of it, didn't you, sir?

A. I believe so.

Q. And, in fact, B & W was sponsoring it, wasn't they, sir?

A. I believe so.

Q. Okay. And, in fact, there are more bioassay studies reported in that document, aren't there, sir?

A. I can't tell you that at all. You'd have to --

Q. Look at page 80.

A. Well, I'm going to have to look at the whole document if you're going to --

Q. Look at page 80, sir.

A. I will look at page 80. I mean, this is cherry-picking. I continue to tell you that I cannot look at something in isolation.

Q. Dr. Wigand, all we are trying to establish in this line of questioning is the fact that bioassay research was going

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on during the time you were at Brown & Williamson.
A. Oh, okay.
Q. And I'm pointing out to you those studies that were going on.
A. Okay.
Q. Now, wasn't there a study going on at page 80 about bioassays?
A. And page 82.
Q. And page 84.
A. Yeah. Okay.
Q. So it was going on while you were there; wasn't it, sir?
A. Bioassay work was going on.
Q. And it wasn't stopped by B & W, was it, sir?
A. Was it used by B & W?
Q. Sir, you have to answer the question I ask. Was it stopped by B & W?
A. Yes, the application of the bioassays was --
Q. Was the bioassay testing stopped by B * W?
MR. ALDOCK: He was halfway

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through the answer. You may not have liked it, but he was halfway through it. You don't know if it was responsive or not until you heard the end of it.
Q. Is that document a lie, sir?
A. I don't think so.
Q. So they did do bioassay testing, sir?
A. Yes.
Q. Okay. And that was while you were there, sir?
A. I think I already said that. Yes.
Q. And B & W was sponsoring it, sir?
A. Sponsoring, meaning what?
Q. Funding it?
A. Funding it. Yes.
Q. Can I have it back, please?
A. Well, can I look through it? I mean, all you want to do --
Q. Sure, you can look through it.
Now, Dr. Wigand you made a comment earlier about circumference

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reduction in testing. Do you recall that?
A. Um-hum, yes.
Q. Isn't it true, sir, that when they looked at circumference testing --
A. Is that in this report here?
Q. No, it's in a different report.
A. Okay.
MR. SHEFFLER: Let's mark this as the next exhibit.

- - - - -

Thereupon, Wigand Exhibit No. 34 was marked for purposes of identification.

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BY MR. SHEFFLER:
Q. Now, sir, what I have handed you is a document --
A. You have handed me part of a document. You have handed me a summary, page and a library sign-out card. That's all you have handed me.
Q. Well, is that library sign-out card from B & W?
A. I have no idea.

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Q. Okay. That's right, I forgot, you don't know what the B & W sign-out card looks like; is that correct?
You don't know what the R & D library sign-out card looks like; is that correct?
A. I do not know what the library sign-out card -- no, I know what the library sign-out card looks like. Is this from B & W, isn't it? I can't tell you. There is no B & W definition -- logo on this or information.
Q. Sir, if you would --
A. It says R & D, L00-89.
MR. ALDOCK: Do we have the copy?
Q. Give them a copy.
Do you have your copy?
MS. WERTHEIMER: Thank you.
Q. Now, sir, doesn't it say, stamped on the very front of this copy, "R & D library, Brown & Williamson"?
A. Yeah, I think I can see Brown & Williamson. I see "R & D library," very

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faint.
Q. Okay. And this was a report that was done on February 22nd, 1989; correct?
A. I believe this was a report that was generated on or about 22 February 1989.
Q. And since it was before March of 1990, where did the report come from?
A. Where did the report come from? It came from the FRC.
Q. It came from --
A. Fundamental Development Center, FRC up on the top.
Q. Sir, would you please look at the first page and answer me where this report came from.
A. It came from the Fundamental Development Center.
Q. Where does it say Fundamental Development Center?
A. It says the Research and Development Center, and that's what I refer to --

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Q. Oh, the research and development center, okay.
A. The Fundamental Research Center, FRC.
Q. Sir, where does it say FRC on this?
A. When I see it, that's what I relate to.
Q. Oh, when you see research and development center, you see FRC?
A. It was -- always in my terminology, it was the Fundamental Research Center.
Q. Even before it was named that, huh?
A. Even before it was named that.
Q. Okay. Sir, look at the title of this. It's called the Effects of the Circumference of Mainstream Deliveries and Composition Progress Report 2?
MR. ALDOCK: What am I doing here? I'm looking at this, and they are over there snickering.
MR. MILLIMAN: I'm sorry, your

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Honor.
MR. ALDOCK: Snickering. He is, he's snickering. This is childish.
THE COURT: Okay.
MR. MILLIMAN: I haven't said a word. I did not say a word, Mr. Aldock. I have not said a word on this record.
MR. ALDOCK: You snicker and you laugh and you move your hand and you make faces.
MR. MILLIMAN: This testimony is snickerable.
MR. ALDOCK: Then leave.
MR. MILLIMAN: -- so I laughed.
THE COURT: All right. That's enough.
MR. MILLIMAN: We all did.
THE COURT: Let's get back to the question, please.
Q. Mr. Wigand, does not the report --
MR. SHEFFLER: Mr. Aldock, please, I would request that you refrain from commenting during my questioning.

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MR. ALDOCK: I would be happy to.
MR. SHEFFLER: Thank you.
Q. Mr. Wigand, isn't the title of this report The Effects of Circumference on Mainstream Deliveries and Composition, Progress Report 2. Do you see that?
A. Um-hum.
Q. Now, sir, if you would turn to the summary.
A. Is there a progress report 1 that I could look at as an extension?
Q. Sir, this was dated February 22nd, 1989. There may have been a progress report 1. I don't know when it was sent, and I'm not sure it was sent to you or not.
A. Was it in the B & W library?
Q. It may very well have been, but this report was sent to you, so I would like to talk about it. It was sent to you, was it not?
A. Yes. And I guess Carol Lincoln and Joan Unsel don't realize that I got a

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copy and fed it to the library.
Q. Well, sir, you got two copies actually, didn't you? And who knows who you fed them to.
A. Did the library have a copy?
Q. The library had a copy, sir. And by the way, just for the record, Carol Lincoln said that you never made any requests of pre-'87 research or any computer-generated requests, correct? She never said that you didn't give her the documents that were sent from Southampton to put in the library. She never said that, did she?
A. I think she needs to refresh her memory.
Q. Sir, if you would turn to page 3, all right, the summary, the third page of the document.
A. Um-hum.
Q. Do you see where it says, summary?
A. Um-hum.
Q. It says, previous studies have

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shown that reducing cigarette circumference reduces specific activity of smoke condensate as measured by Ames in mouse skin painting test. That's what you referred to as earlier, right?
A. Uh-hum.
Q. Look farther down at the last paragraph.
A. Well, let's continue with this paragraph. More recent work – I'm not going to take things out of context. I need to look at the whole document and the text.
Q. You can look at whatever you want, sir, but you have to answer my questions, and my question is directed --
A. You are going to have to pause to let me read.
Q. You can read the entire document to yourself. And then I'm going to ask you a question, okay?
A. Okay.
Q. Sir, isn't it correct that although they found that there was reduced

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action on the Ames in mouse skin painting tests this study also found that formaldehyde, acrolein, and some other carbinols were increased?
A. That's what this report tends to say, but I'm looking at the summary report; I'm not looking at any data.
Q. Isn't it true, sir, that according to the 1989 Surgeon General's report, formaldehydes and other carbinols in the carbinol family, are carcinogenic?
A. I believe it did.
Q. So if –
A. Why isn't acrolein here? I mean, you left out acrolein.
Q. Acrolein is an irritant; isn't it, sir?
A. It's also a carcinogen.
Q. Not according to the 1989 Surgeon General's report, is it?
A. Is there any report up to date past 1989 that takes and makes acrolein a carcinogen?
Q. Sir, we are talking about the

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time period you were at Brown & Williamson, are we not? And I'm not aware of any Surgeon General's report saying that.
A. Are you aware of any -- is there any report in the literature that deals with acrolein as a carcinogen?
Q. Name them.
A. I would have to do a literature search and I can do that for you by tomorrow.
Q. Okay.
MR. ALDOCK: No, you can't.
Q. The question on the table -- the question on the table is, isn't it true that although there was a reduction in Ames testing from reduced-circumference cigarettes, there was also increases in other unwanted constituents in cigarettes?
A. That's what this report tends to conclude. It's a summary that you are reading to me.
Q. And that's consistent with what the Surgeon General was concluding when he

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said modifications of the level of one substance will also affect the level of other substances; isn't that correct?
A. Modification of what?
Q Of one substance may very well affect the modification of another substance.
A. Okay.
Q. So you may decrease one unwanted constituent but have the same effect of increasing another unwanted constituent; isn't that right?
A. That seems to be correct.
Q. And isn't that the reason why the Surgeon General concluded that this was a very difficult and complex area of science?
A. In 1981 he concluded that, but --
Q. It was still complex in 1989; was it not?
A. Not as complex as it was in 1981. Science did progress.
Q. Sir, the Surgeon General in 1981

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concluded that because of the complexity of cigarette smoke, the total impact of any cigarette modification on smoke composition will probably never be fully known. Do you agree with that?
A. Without reading the whole document, I can agree in part. I would have to read the whole document. Generally I would agree with it. I mean, you are asking for scientific conclusions without the opportunity to review the data and information again.
It also says in this report that there is free radical concentration and nitrosamines that are clear carcinogens.
Q. Isn't it true, sir, that Brown & Williamson, along with B.A.T. in Southampton, tried to reduce nitrosamines in tobacco smoke?
A. Did they try? Did Brown & Williamson try? You mean by Brown & Williamson funding research? I would have to see that document.
This document that you handed

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me, I haven't had an opportunity to read this document.
MR. SHEFFLER: Let me show you, sir, a document that we have now marked as Exhibit Wigand 34. Wigand 35, I'm sorry.
- - - - -
Thereupon, Wigand Exhibit No. 35 was marked for purposes of identification.
- - - - -
THE COURT: Mr. Aldock?
MR. ALDOCK: At the end of the deposition, your Honor, when they put the exhibits together, we would really like the whole document. I know they are long. We are out of town. He is referring to big documents, selected pages.
I'm happy to pay my share of the Xerox, but I think we would like the whole document, not the just the excerpt of anything he has marked as an exhibit at the end of the day. I don't want to interrupt anything.
MR. SHEFFLER: Well, your Honor,

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let me just respond to that. The problem is some of these documents do contain trade secret information because the projects are ongoing.
Secondly, what I am using, sir, is the summary of the report, and I think that the summary of the report contains the conclusions that I am examining on. And the entire summary is prepared and presented to the witness.
So there is nothing here, other than what I am asking him about, that the witness needs to review. It's the summary of the report. And he can say the summary is incorrect, but it certainly was the summary of the report of the researchers who were doing it.
If he wants to say it's incorrect and he can't say it's correct unless he reviews the entire thing, he can say that. But this was the conclusion of the people who did the research and it was presented in a summary fashion.
It's the same thing as using an

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abstract from an article. I don't think that the witness is entitled to read every single word of every document that I use to question him on. If he has to read the entire dictionary to understand what tremendous means, we are going to be here all day.

MR. ALDOCK: Your Honor, they can make it a trade secret except the summary, that's fine. We are entitled overnight to see the exhibits he is using to cross-examine. If he wants to put the summary in and not ask him any questions except this is a summary, that's fine. He's asking substantive questions.

THE COURT: Part of the problem, as I understand it, is that you have not had document exchange yet, document discovery; is that – did I say that correctly?

MR. ALDOCK: Right. We have been precluded by court order from having any documents get produced to us.

THE COURT: I'm going to, for

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the purpose of this deposition, not go beyond that. And if they file an exhibit, you get a copy of the exhibit as filed. Now, if that's not complete, you will be able, I presume, in time to get that subject to, subject to parts of the file.

MR. SHEFFLER: Your Honor, the idea that --

MR. ALDOCK: Excuse me a minute, I'm sorry. The idea that we were precluded from taking discovery doesn't mean we don't get a complete exhibit at the deposition.

THE COURT: You will get the complete exhibit. If they file something as an exhibit, it's their exhibit. If you want to come back later and put something in the record more complete, you may do that, but it's their exhibit.

I'm not going to tell them how to file their exhibit. If you object to an exhibit, I will do my best to rule on it. But so far I have heard no objections to the exhibits themselves. And they will

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furnish you with a copy of the exhibit as filed.

MR. ALDOCK: I would like to object to all exhibits that are partial on the grounds that he is being examined on a partial document and we are not being allowed to even see for purposes of this deposition the whole document in order to understand the context.

Now, we are not asking that it be done during the deposition. We don't want to interrupt anything. All we ask is that they, overnight that they Xerox it. And we are perfectly happy for it to be labeled trade secret.

THE COURT: Let me make a few observations. As I understand the nature of this lawsuit, Dr. Wigand allegedly has gone to 60 Minutes or CBS or somewhere and made statements without documents I presume. And why in the world, when he is cross-examined under oath here today, he has to go through all these exhibits, I don't understand to be frank with you.

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Now, while we are stopped here, let me make another observation. The deposition has been going very, very slowly at times, partly because of Dr. Wigand asking questions back instead of answering them.

Judge Mershon has ruled that this deposition will end at 5:00 o'clock on Friday. I can't change that. But as a Special Commissioner I can make a recommendation and if it continues to go this way, I'm going to make a recommendation that Brown and Williamson be given additional time to cross-examine this witness because it is a -- it is at times appearing to be a delaying tactic of him not answering questions and the same question has to be asked time and time and time again.

And I'm sitting here as patiently but I have got a cure for it. I will go directly to Judge Mershon and make a recommendation, and I believe he would follow it, that Brown & Williamson be

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given another week or whatever it takes to get the witness to answer these questions.
Now, let's continue with that in mind.
MR. SHEFFLER: Would you mark this, please, as the next exhibit?
- - - - -
Thereupon, Wigand Exhibit No. 35 was marked for purposes of identification.
- - - - -
MR. SHEFFLER: We will withdraw Wigand 36.
Q. Now, sir, I have shown you what we have marked as Wigand 35 and is it not a copy of research done at the Research and Development Center, Southampton, England?
A. It appears to be maybe one report.
Q. Okay.
A. Relating to nitrosamine reduction by tobacco radiation.
Q. Is this report in the R & D

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library at Brown & Williamson?
A. I would assume so.
Q. Is it not so stamped, sir?
A. It's so stamped on the right-hand corner.
Q. Okay. Were you sent a copy of this report, sir?
A. I was sent two copies.
Q. Okay.
A. Copy number three and copy number four.
Q. And this was an attempt to reduce nitrosamines by tobacco irradiation; was it not?
A. It was an attempt to reduce tobacco nitrosamines by irradiation.
Q. What was the effect of the attempts here, sir?
A. I would have to read it. It addresses a method by which you can irradiate tobacco after treating the tobacco with L-ascorbic acid or basically Vitamin C.
THE REPORTER: I'm sorry.

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THE WITNESS: It describes a method by which tobacco sheet can be irradiated with ultraviolet light at 366 nanometers and produces a reduction of 24 percent in total tobacco-specific nitrosamines.
And further reduced by pre-heating the sheet with -- by 40 percent, by using L-ascorbic acid or vitamin C.
Q. Sir, what was the conclusion of the report? Was it not, "However, when tobacco samples were irradiated, TSN reductions were not obtained." Doesn't it state that in the report?
A. Where does it state that, please?
Q. In the second sentence of the second paragraph?
A. Yeah.
Q. Doesn't it say that? "However, when tobacco samples were irradiated TSN reductions were not obtained"?
A. I'm sorry. We are down in the second paragraph. It showed, experiments

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showed that gamma radiation --
Q. "However, when tobacco samplings were irradiated, TSN, that's nitrosamines; isn't it sir?
A. Uh-huh.
Q. -- reductions were not obtained." Isn't that correct?
A. Yeah, but I think you are mixing apples and oranges here. Are we talking about gamma radiation or are we talking about UV radiation here?
Q. We are talking about this report.
A. Well, it's fairly specific. It deals with two methods of irradiating tobacco.
Q. Okay.
A. One happens to be ultraviolet, and the other happens to be gamma radiation.
Q. And when it talks about ultraviolet radiation, what is the conclusion, sir? Is it not, "Thus, practical application of UV radiation is

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limited; consequently, gamma rays, a more penetrative radiation, were investigated"?
A. I'm not so sure I'd want to have product exposed to gamma radiations.
Q. Well, sir, this was research being done to try to eliminate what you had just identified as one of the toxic constituents in tobacco smoke.
So they were trying to do it, weren't they? They were trying to eliminate some of these constituents, weren't they, sir?
A. They were doing research on the, on the method of reduction, yes.
Q. And this was ongoing at Southampton; isn't that right?
A. Yes. It was done in terms of -- has it ever been applied?
Q. Well, sir, they weren't going to irradiate tobacco with gamma rays, you said.
A. Well, they could have irradiated it with UV light; could they not?
Q. It was very limited.

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A. You get 40 percent -- no, you get 40 percent reduction in treating tobacco with L-ascorbic acid.
Q. It says the practical application of this is limited.
A. I'm sure you could find enough engineering talent to find a way to make it practical. Was there ever an exploration of that? I don't know.
Q. Wasn't it true, sir, that they had engineering talent at Southampton in the U.K. looking into this very issue?
A. That I don't know.
Q. Well, you have report here, sir. Wasn't it from Southampton?
A. Is this engineering?
Q. Sir?
A. Is this the Fundamental Research Center?
Q. Sir, the Fundamental Research Center did the basic building blocks of science work on smoke constituents that then were to be applied by the other CAC companies; isn't that true?

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A. That is correct.
Q. So until you had the fundamental research done at Southampton, companies in the CAC, like Brown & Williamson, could not use the applied research; isn't that true?
A. That seems right, yes.
Q. So if the fundamental research couldn't find the answers, there was nothing for Brown & Williamson to do, was there?
A. I think there is a transition between fundamental research, applied research, and integrating into a manufacturing environment.
Q. There certainly is, sir, but you need the fundamental research first, don't you?
A. And what this fundamental research, at least on this scale, shows is that by applying or utilizing ultraviolet light or gamma radiation, you could have reduction in nitrosamines.
Q. Yes, sir, but neither

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approach -- in the gamma radiation, irradiated TSN reductions were not obtained. That's what it says. And the practical application of UV radiation is limited. That's what it says.
A. That's what it says here at least on the irradiation.
Q. Okay.
A. It also talks about enzymatic processes.
Q. Enzymatic processes, they investigated that too, didn't they, sir?
A. That's what the back of this report suggests.
Q. And you know that they investigated enzymatic processes, didn't they, while you were there, weren't they?
A. Project Day was directed at enzymatic reduction proteins.
Q. And wasn't Southampton doing research on enzymatic processes?
A. In 1989, I believe so.
Q. Enzymatic processes were designed to try to reduce certain

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constituents of smoke; were they not?
A. I believe it was the foundation by which project Day, a safer cigarette, was being worked on.
Q. And that was being worked on in Canada; is that correct?
A. And in B.A.T. Southampton.
Q. And B.A.T. Southampton was looking at enzymatic modification of tobacco by polymers; were they not?
A. I believe the FRC was looking at that.
Q. And when the FRC looked at that enzymatic modification of tobacco with polymers removed, the effect of minor constituents and tested with the Ames activity test, what did they find; do you know?
A. Probably reduced Ames activity.
Q. And did they also find increase in formaldehyde? Did they also find increase in catechols?
A. They could have.
Q. So it wouldn't be a very viable

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procedure to utilize in the manufacture of cigarettes yet, would it?
A. Why wouldn't it be?
Q. Well, sir, do you want to manufacture cigarettes that have increased levels of formaldehyde?
A. I wouldn't think so.
Q. And obviously B & W didn't think so, did they?
A. I don't know. I would have to see the report again. I mean, you are dealing with me in a very specific technical terms --
Q. Sir --
A. -- and areas. And you are not allowing me to see what I need to see to reaffirm the conclusions.
Q. Sir, you have come to conclusions and you have stated those publicly.
A. And you are asking me --
Q. And I'm asking you, sir, questions relating to those conclusions that you had no compunction about

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broadcasting to the world. And what I am doing, sir, is trying to investigate the bases for those conclusions.
What is the safe cigarette component that could be removed -- strike that.
What is the component, sir, that you would remove from tobacco to make it safe?
MR. ALDOCK: Your Honor, the allegations have been -- they are clear. He has said you could have a safer cigarette. And the questions, which throw the witness, are how can you make a cigarette safe and people think you can't.
THE COURT: Would you be willing to change it to safer?
MR. SHEFFLER: I sure would, your Honor.
Q. Mr. Wigand, what component would you remove and what precursor components would you remove from cigarettes that would allow the American Tobacco -- allow the Brown & Williamson Tobacco Company to

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manufacture a cigarette as safer?
A. How would I make a safer cigarette?
Q. No, sir, that is not it. That is not the question.
A. How would I make a safe --
Q. The question is, what component would you remove from cigarettes that would allow the Brown & Williamson tobacco company to manufacture and sell a cigarette in this country as safer?
A. Complete nitrate reduction, one; reduction in total protein; three, rationalization and reduction of added additives; selective filtration geared at reducing the carbinols and the aldehydes.
Q. Sir, isn't it true --
A. I'm not finished.
Q. Let me interrupt you because you are making too many, and I'm not going to believe to be able to go back.
MR. SHEFFLER: Your Honor --
Q. I'm sorry. Finish your answer, I'm sorry.

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THE COURT: Make a note as to what you want to ask him about and let him finish. Go ahead and finish. Then you can ask about any of these or all of them.
THE WITNESS. Selective filtration. I would do both qualitative – I would want to do both qualitative and quantitative bioassays on individual components and additives to assure that the components and additives that are used, other than being FEMA and GRAS approved, have their paralytic fate identified.
I would look at cigarette paper and its porosity. I would look at blend components, whether Burley tobacco, flue cured tobacco and add-ons.
Q. Add-ons?
A. Yes, add-ons.
Q. What are add-ons, sir?
A. Expanded tobacco, stem reconstituted tobacco.
Q. You would look at those, sir?
A. I would look at all of it. You

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asked me my idea of how to –
Q. Go ahead.
A. I guess what I would look at is -- what would be I would like at the NTP tests, what the classification of National Toxicology Program uses to assess the toxicology of a given system.
Q. Sir, I'm asking you about the components that you would remove from tobacco to let it be manufactured and sold in America as safer. That was the question.
A. I think that's where I am getting to. Okay. And what I would do is I would look at the various components, with and without, and I would assess whether I had an increased biological response or a decreased biological response.
Q. Okay.
A. I think the industry and, at least my understanding of the euphemism in Brown & Williamson and B.A.T., that when we talked about biological activity we

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were talking about reduced hazard.
Q. Let me ask you about those, sir. First of all, the testing that you were talking about, biological testing, that was, as we have shown, bioassay testing, the Ames testing, mouse skin testing, that was done, wasn't it?
A. Was it applied to cigarettes? It was not applied to cigarettes.
Q. Well, we just had a -- you just had an exhibit here, sir, shown to you where you read that the results of mouse skin and Ames testing --
A. Where did I read that? I mean, I looked at nitrosamine reduction by UV and gamma radiation. I don't think I looked at any -- I don't think I just looked at any results on mouse skin painting.
Q. You don't think that Brown & Williamson funded research at Southampton that looked at biotesting, mouse skin painting tests and Ames tests?
A. At B.A.T. Southampton?

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Q. Yes.
A. Did they do it? No, they contracted it out.
Q. They had somebody else do the mouse skin paintings? Okay. So they contracted it out and had the mouse skin paintings done for them?
A. Yes.
Q. Okay.
A. When? I mean, this is in 1989? 1971? What's the time frame we are dealing with here?
Q. The time frame we are dealing with, sir, is when you were there.
A. In 1989, B.A.T. Industries or B.A.T. Southampton, FRC was doing mouse skin painting outside.
Q. They were contracting it out; were they not?
A. I'm not sure of that.
Q. Sir, are you sure they didn't?
A. I'm not sure they did or didn't. I don't know.
Q. They did Ames testing throughout

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the time you were there?
A. They did Ames testing, they did sister chromatid exchange, they did a lot -- chromosome elaboration testing.
Q. So they did a lot of testing on cigarette constituents, didn't they?
A. They did a lot of testing on cigarette constituents, yes.
Q. Okay. So let me go to the next thing you talked about, the next to last one, which was blend components. Burley, flue cured, and add-ons. You would like to look at those. Did Brown & Williamson, through B.A.T. Southampton, look at blend components for cigarettes? Did they test Burley?
A. And they found that Burley increased biological activity.
Q. Did they test Burley?
A. They tested Burley.
Q. Did they test flue cured?
A. They tested flue cured. And they found the all-flue-cured cigarette -- an all-flue-cured cigarette reduced, had

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reduced the biological activity.
Q. Sir, isn't it true that all of the things you have mentioned here have been done at B.A.T. Southampton?
A. They may have been done but they have never been executed.
Q. Isn't it true the reason why they couldn't execute them is because the fundamental research hadn't developed to the point where they could be applied?
A. I don't agree with that.
Q. Selected filtration of carbinols was one of the ones you mentioned. Did they not look at carbinols at B.A.T. Southampton?
A. I'm sure they looked at a lot of components.
Q. Didn't they research what carbinols were at Southampton?
A. I believe they did.
Q. Isn't it true, sir, they couldn't even find the precursor or precursors for carbinols when they researched it?

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A. I'm not sure of that conclusion.
Q. Sir, would you agree with me that it would be very difficult to design a filter to selectively filtrate carbinols whenever the precursor for the carbinols was unknown?
A. You couldn't distinguish any carbinol's precursor?
MR. SHEFFLER: Would you mark that.
Withdraw that.
Q. Sir, can you tell me whether or not all of the things you have mentioned here total proteins, reduction nitrates, carbinols, would have been reduced by reducing tar?
A. I think that's a more complex question and requires a more complex answer than really what you are asking me for.
Q. All right. Let me break it down. If you removed tar, would you remove total protein?
A. I'm not so sure that's a

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corollary.
Q. If you designed a cigarette that reduced tar?
A. If you remove tar, you remove protein. That makes no technical sense to me at all.
Q. If you made a cigarette, sir, that was designed to reduce tar -- with ventilation and filtration, isn't that going to have the same effect as reducing total protein?
A. I can't answer that question.
Q. You don't know?
A. I can't answer that question without data. I mean --
Q. Well, sir, you are aware, are you not, that from the 1966 Public Health Service's recommendation that cigarettes should reduce tar, that Brown & Williamson's cigarettes have been reduced in tar and nicotine? Are you aware of that?
A. Brown & Williamson's cigarettes have been reduced in tar and nicotine. I

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mean, the tar and nicotine ratios may have remained relatively constant. The tar has gone down, yes, but nicotine has stayed relatively constant.
Q Isn't it true, sir, that since 1966, tar and nicotine have dramatically reduced in proportion to each other at the same proportional rate?
A. I would have to look at that again.
Q You don't know?
A. Not off the top of my head. I haven't reviewed it in the last couple years.
Q. Sir, there is a certain ratio between tar and nicotine; is there not?
A. Depends on the cigarette.
Q. Okay.
A. It depends how it's measured.
Q. Isn't it true, sir, that since 1968 through at least 1978, the sales weighted averages of tar and nicotine per cigarette declined roughly in the same degree?

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A. We are talking about 1968 to '78. Let's get into 1990's. That's old data.
Q. Sir, are you aware of the fact that since 1... -- are you aware, sir, between the period 1968 to 1994 B & W's tar and nicotine ratios --
MR. APPLETON: The tar and nicotine ratio has actually gone up.
MR. ALDOCK: Objection.
THE COURT: Sustained.
Q. Are you aware, sir, since 1964. He was just telling me that. Are you aware, sir, since 1964, '66, until 1994 the tar and nicotine ratios have actually gone up for Brown & Williamson cigarettes, were you aware of that?
A. Tar and nicotine ratios have gone up?
Q. Were you aware of that?
A. What you are saying to me is what, that the tar delivery has gone up?
Q. Didn't you just tell me that the nicotine delivery did not go down as the

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tar delivery did? Isn't what you told me?
A. I'm sorry, one more time.
Q. Didn't you just testify earlier that the nicotine did not go down as the tar went down, isn't that what you said?
A. I think I said that, yes.
Q. In other words, since the tar is in a normal unfiltered cigarette about ten to one ratio to nicotine, if the tar -- let's talk about unfiltered for a second -- isn't it true that the normal tar to nicotine ratio is about ten to one?
A. No. What kind of cigarette are you talking about? What's normal?
Q. I'm talking about the Kentucky reference nonfiltered cigarette, isn't the ratio of that ten to one?
A. Based on a machine, yes.
Q. Isn't it true that if you reduce tar and you did not reduce nicotine the tar to nicotine ratio would do what?
A. Change.
Q. Change. The nicotine would go up, the tar would go down. Isn't that

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right?
A. If tar went down and nicotine stayed constant, yes.
Q. Isn't it true, sir, that between 1968 and 1994, the tar and nicotine levels for Brown & Williamson cigarettes have gone down, both of them have gone down; isn't that true?
A. The tar and nicotine, both, of Brown & Williamson cigarettes have gone down? That's opposite of what you just told me. You just told me that the tar went up over that period.
Q. I did not say that, sir, I said the tar to nicotine ratio.
A. I'm sorry.
Q. Isn't it true that the tar and nicotine have both gone down since 1968 to 1994, isn't that true?
A. I can't do that without looking or referring to the data.
Q. Do you know whether it went down or not?
A. My general recollection is tar

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went down but nicotine stayed relatively constant, but I can't do that without looking at data.
Q. Sir, have you looked at any data about sales weighted averages for tar and nicotine levels in American cigarettes since 1966?
A. No, I haven't.
Q. Have you ever investigated the issue?
A. Have I ever investigated? Probably have.
Q. You have been saying publicly that the tar and nicotine ratio has been changed by reducing tar and increasing nicotine. Haven't you said that?
A. I don't think I have said that, show that to me where I said that.
Q. Have you said that the tar and nicotine ratio has been changed?
A. The objective of many projects at Brown & Williamson was to reduce the tar or maintain the nicotine such as in Project Green Dot. Project Green Dot was

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an objective of going from a tar to nicotine ratio of 15 to 1 to 10 to 1 to 5 to 1, ultimately 1 to 1. To me that is reducing the tar and nicotine ratio while reducing tar and maintaining the nicotine delivery.
Q. That's correct. Doctor, isn't it true that Project Green Dot was at B.A.T.U.K.E., Southampton, it was not a B & W project?
A. What does that mean? We are talking about B & W funding the research and B & W deriving benefit from funding that research.
Q. That's correct.
A. And that information should not funnel back to B & W?
Q. Yes, they did get that information and they never utilized it for a commercial cigarette, did they?
A. U.K. did and so did Switzerland and so did Germany.
Q. B & W never utilized Project Green Dot's information on reducing tar

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and maintaining nicotine in any American cigarette, did they?
A. Did they use the technology? I don't know. They used Green Dot one for one.
Q. In the U.K., you are familiar with the Froggett Commission?
A. Yes.
Q. Are you familiar with ISCH?
A. Generally. The Research Council on Cancer, I believe. International Research Council.
Q. International smoking?
A. Yeah.
Q. Are you familiar with it, sir?
A. Yeah, it's a U.K. organization.
Q. It's a quasi governmental organization, isn't it?
A. I believe so.
Q. And wasn't -- it's the ISCSH, Independent Scientific Committee on Smoking and Health; correct?
A. That's a different acronym you are giving me now.

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Q. Isn't it the ISCSH? Independent Scientific Committee on Smoking & Health?
A. That is a U.K. governmental agency.
Q. And wasn't one of the U.K. governmental agency's recommendations to the tobacco industry in the early '80's was the reduction of tar with the maintenance of nicotine, wasn't that one of the recommendations for the tobacco industry?
A. Worldwide?
Q. No, for the U.K.
A. It may have, I vaguely remember that, yes.
Q. And isn't that why Project Green Dot, which was trying to reduce tar and maintain nicotine in the U.K., was instituted, to meet the recommendations of the ISCSH?
A. I would imagine it was meeting what the consumer wanted.
Q. It was also meeting what the government in the U.K. wanted; correct?

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A. I'm not sure of that.
Q. Are you sure of this, sir, are you sure that the government in the U.S. did not recommend reducing tar and maintaining nicotine, they did not do that, did they?
A. I don't believe the U.S. Government ever did that.
Q. Brown & Williamson would not be interested in manufacturing a Green Dot product in America because that was not what the regulators were looking at in America, was it?
A. The regulators in America, I believe, which had no dialogue with the tobacco industry felt that no cigarettes were safe cigarettes, any cigarette, period.
Q. Wasn't the recommendation of the American government in 1966 and in 1981 the reduction of tar levels in cigarettes? Wasn't that their recommendation?
A. I believe that was their

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recommendation.
Q. And isn't that what Brown & Williamson did from 1966 up through 1994 and up through today, they have made cigarettes with less tar, exactly what the government of the United States told them to do, isn't that true?
A. And the rest of the government has told people that smoking and nicotine are addictive and harmful substances and smoking is harmful. Did they follow that recommendation?
Q. Can you answer my question, didn't the United States government tell the tobacco industry and the world that reduction in tar was a desirable effect, and isn't that what Brown & Williamson did, reduced the tar in their cigarettes?
A. I believe that came out in 1954 and what they did is they put filters on cigarettes at that time.
Q. Haven't they continued to reduce the tar level in cigarettes until the present time?

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A. They probably tried to reduce overall tar while maintaining nicotine delivery and optimizing it.
Q. Sir, we are talking about Brown & Williamson?
A. Yeah, I'm talking about Brown & Williamson.
Q. Do you have any evidence that the tar and nicotine levels in Brown & Williamson cigarettes have not gone down from 1968 until 1994?
A. The tar and nicotine levels have not gone down, I'm sorry, the tar and nicotine levels –
Q. Do you have any evidence that the tar and nicotine levels have not both gone down since 1968 to 1994?
THE COURT: Time.
THE VIDEOGRAPHER: Going off the record, the time is approximately 2:55.
(Recess taken)
THE VIDEOGRAPHER: Back on the record, the time is approximately 3:04 p.m.

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BY MR. SHEFFLER:
Q. Mr. Wigand, before the break we were talking about tar and nicotine and the ratios.
Now, it's true, sir, is it not, that there is a fundamental relationship between tar and nicotine?
A. Is there a fundamental relationship between tar and nicotine? No.
Q. Okay. Was it thought that there was a fundamental relationship between tar and nicotine in the 1981 Surgeon General's report?
THE COURT: In cigarettes.
Q. With respect to cigarettes, yes.
A. I can't recall.
Q. How about the 1988 Surgeon General's report, did they find that there was a fundamental relationship between tar and nicotine in cigarettes?
A. I remember reading it, but I can't recall specifically.
Q. Is there a ratio that has been determined for tar and nicotine for

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cigarettes?
A. A ratio for what?
Q. For -- in the smoke of cigarettes, have they measured a tar and nicotine ratio and reported same, they being the people who test cigarettes?
A. You mean the tobacco companies?
Q. We will start there, have the tobacco companies reported tar and nicotine ratios for their products?
A. Reported them, no. I believe the industry has reported tar and I believe the industry has reported nicotine, and I believe the industry within the companies deal with tar and nicotine ratios, tar per puff, nicotine per puff.
Q. Isn't it true, sir, if you have the tar and you have the nicotine, it's a very simple matter to make a ratio between the two, correct?
A. I would think it's a simple calculation.
Q. Isn't it true, sir, that the tar

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and nicotine ratios have been reported in the Surgeon General reports and other places since the early 1980's?
A. It appears that they have, but I would have to refresh my memory on that again.
Q. Now, sir, am I correct that if you were to reduce tar and maintain nicotine, what would happen to the tar and nicotine ratio?
A. It would go down.
Q. That's because, generally speaking, there is more tar than nicotine in cigarettes commercially manufactured today; is that correct?
A. I'm sorry, there is more tar than nicotine?
Q. Is there not in most commercially sold cigarettes more tar than nicotine?
A. It depends on how you put the cigarette together, you can control that.
Q. In the commercially manufactured and sold cigarettes on the market in

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America today, do you know of any cigarette that does not have a greater tar to nicotine ratio?
A. Than?
Q. Do you know of any cigarette that does not have a greater amount of tar compared to nicotine per puff, per smoke or per cigarette?
A. I can't think of one offhand, no.
Q. There isn't any, are there, sir?
A. I can't think of any offhand.
Q. You don't know that there was any in 1988 through 1992?
A. I cannot think of any where the tar was less than or equal to the nicotine.
Q. There is a ratio then, a tar to nicotine ratio, where tar is greater than nicotine, correct? For the commercially manufactured and sold cigarettes in America?
A. There are various tar and nicotine ratios, depending on what the cigarette is, whether it's full flavored cigarette, it's got a higher tar to

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nicotine ratio, when you go down a lower delivery such as Barclay you would have a lower tar to nicotine ratio.
Q. Isn't it true, sir, since 1968, on in through 1994, the tar and nicotine in Brown & Williamson cigarettes has declined?
A. I would have to look at the data but that seems right to me.
Q. Isn't it also true, sir, if Brown & Williamson were making products where they were reducing the tar but maintaining the nicotine, the ratio would not be the same, as it was before they were reducing tar and reducing nicotine?
A. We are talking about the FTC method of measuring tar and nicotine.
Q. Let's talk about the way they measured it at Brown & Williamson. Is that the way they measured at the FTC?
A. I believe that's the same method.
Q. Okay.
A. In fact, I believe Brown & Williamson submitted their data to the FTC

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but it was based on what a machine smoked.
Q. Okay, sir. Now, if your proposition that Brown & Williamson decreased tar but did not decrease nicotine at the same rate, in other words, if there was a proportional difference in the way tar and nicotine were reduced, deliberate or otherwise, what would happen to the tar and nicotine ratio?
A. Based on what you just said there, it would go down.
Q. Is that correct, sir, not based on what I said, is it correct that if you reduce tar at a greater rate than you reduce nicotine, the tar and nicotine ratio would go down?
A. Based on your hypothetical you just gave me, yes, it would go down.
Q. Okay. Now, sir, if your testimony is correct, and Brown & Williamson was reducing tar at a greater rate than they were reducing nicotine, the tar and nicotine ratio on the sales weighted average for their cigarettes

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should go down?
A. I don't know what you meant by a sales weighted average.
Q. There are many different brands of cigarettes, aren't there?
A. Why don't we just stay with one class of or brand of cigarettes, why don't we talk about full flavored cigarettes and look at those.
Q. Let's talk about full flavored cigarettes. Is it your contention, sir, that the ratio between tar and nicotine in full flavored cigarettes has gone down?
A. As based, yes, it has gone down based on the FTC method. It has not gone down based on the nicotine delivery, nicotine delivery has gone up.
Q. I'm asking you the question about the ratio. Now, the ratio, tar and nicotine have both gone down on the FTC method; right?
A. That's a measurement in an artificial system.
Q. I understand.

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A. And that's an artificial system. You have to clarify for me, are you talking about what's done in the mechanical system that does not mimic human smoking, or are you –
Q. I am asking you, sir, questions based on work done at B & W, so the FTC is misleading, if it's misleading according to you that's fine. For the purposes of my question, since the FTC does have the standardized methodology for testing these products, let's direct my questions to that, okay, do you understand where I am coming from?
A. Yes.
Q. You do agree that the tar and nicotine levels have both gone down in Brown & Williamson cigarettes as measured by the governmental regulation or regulatory agency that's responsible for measuring those?
A. With the exception of Barclay.
Q. Is it your claim, sir, that the tar and nicotine levels of Barclay have

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not gone down?
A. I think there is two different methods of measuring Barclay. I think Barclay was clearly a disputed product in terms of its delivery.
Q. When was that?
A. That was during my tenure and prior to my tenure at Brown & Williamson.
Q. How was it resolved?
A. How was it resolved?
Q. How was it resolved?
A. How was it resolved? It was taking a machine method, open vent, closed vent and then averaging the numbers.
Q. Okay.
A. However, Brown & Williamson claimed that that tar value was less than what it actually measured out to be.
Q. Sir, isn't it true, that if your claim is correct, and Brown & Williamson did not reduce nicotine in the same proportion as they reduced tar, the tar-to-nicotine ratio would be decreased; is that correct?

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A. I believe that's a correct statement.
Q. So, sir, if from 1968 to 1994, it were shown that in Brown & Williamson cigarettes the tar and nicotine ratio has actually increased slightly, your claim would be false, would it not?
A. And so what you are saying to me is the tar is increased from 1968 to --
Q. No, no, I'm saying the tar-to-nicotine ratio, sir, if it were shown that the tar-to-nicotine ratio in Brown & Williamson cigarettes from the period 1968 to 1994 has actually slightly increased, your claim that you have publicized would be false; is that not correct?
A. I think you have to look at two parameters, what is the tar what is the nicotine? Those are two different sets of numbers.
Q. Obviously, sir, that's why there is a ratio. If the ratio between those two sets of numbers has not decreased, as

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you said it should if the nicotine's was not reduced in the same proportion as tar, but in fact slightly increased, your claim that the tar and nicotine ratios were manipulated by Brown & Williamson to increase nicotine while reducing tar is false, isn't that true?
A. That is incorrect. I think tar and nicotine, nicotine is manipulated by Brown & Williamson through ammonia chemistry. And I don't think the FTC method compensates or addresses the nicotine delivery associated with ammoniated product.
Q. We are going to talk about ammonia tomorrow. It's my understanding that you have said in the prior occasions that ammonia technology did not add nicotine to cigarettes; isn't that correct?
A. I didn't say that. I said it enhanced the delivery of nicotine in a pharmocologically active form.
Q. It did not add nicotine to

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cigarettes; is that correct?
A. It increased the availability.
Q. We will address that tomorrow, sir, I know you are anxious to talk about it, we will talk about at great length. Right now, sir, just answer my question. Isn't it true that if your claim that Brown & Williamson tried to reduce tar while maintaining nicotine were correct, the tar and nicotine ratios would have decreased?
A. Based on FTC measurement yes.
Q. And so sir, if in fact from 1968 to 1994 those tar and nicotine ratios for those cigarettes have slightly increased, your claim is false?
A. I would to have look at the data before I reaffirmed that or confirmed that.
Q. What data would you look at?
A. Show me the data that demonstrates between 1968 to 1994 that truly occurred.
Q. Let me ask you this, sir, assume for the purposes of my question, that that

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data does exist, assume that you have looked at it, okay, assume that you have satisfied yourself that the data is correct. Okay? Would it not -- if the data showed that there was an increase, not a decrease in the tar-to-nicotine ratio, would that not prove that your claim is false?
A. If such data existed, it may.
Q. It may?
A. It may.
Q. Mr. Wigand, I had asked you some questions before about molecular biology and you told me about five nucleotides, you said there were five nucleotides, do you recall that?
A. Yes, in DNA.
Q. In DNA. And I think you identified those five nucleotides. One of them was uracil; do you remember that?
A. Uh-huh.
Q. You said uracil was a nucleotide of DNA?
A. I said uracil could be found in

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DNA.
Q. You said it was a nucleotide of DNA, didn't you, sir?
A. I said it could be found in DNA.
Q. Sir, did you not testify it was a nucleotide of DNA?
A. I would like to see what I said then.
Q. Okay. First of all, sir, is uracil in DNA or is it in RNA?
A. It is predominantly in RNA but also can be found in DNA and is also found in messenger RNA.
Q. Do you know who –
A. Watson Crick.
Q. -- James Watson is?
A. Sure do.
Q. Okay. Have you had occasion, sir, since the time we discussed this to look up what Watson or Crick or anyone has said about nucleotides and DNA?
A. Have I had occasion to look what nucleotides are in DNA? I think so.

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Q. Okay.
MR. ALDOCK: No, no, since this morning.
MS. WERTHEIMER: Since this morning?
THE WITNESS: Oh, since this morning. I'm sorry, I'm sorry, I didn't hear you. No.
Q. Well, I have a book here, sir, entitled Molecular Biology of the Cell, and one of the authors is James Watson. Who is James Watson by the way?
A. Watson. Is this a test?
Q. No, no.
A. He was one of the co-discoverers of the helix structure of DNA –
Q. Okay.
A. -- with Crick.
Q This is something that, this is something that you as a biochemist supposedly have great insight and information about, right? You told us about your studies in molecular biology as an undergraduate or graduate, I couldn't

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remember which. But this is something you claim to have expertise in; isn't that correct?
A. Yes.
Q. And you claim there are five nucleotides; isn't that correct?
A. You asked me what nucleotides were in DNA, and I believe there is adenine, thymine, cytosine, guanine and uracil in DNA.
Q. If Watson in his book, the discoverer of this, said there are only four different subunits, these deoxyribose nucleotides containing the basis adenine, cytosine, guanine, and thymine, would he be wrong?
A. Would he be wrong? In that book I believe he may say that. But I will tell you that uracil has been found in DNA.
Q. You would tell me that –
A. That is not a correct statement. That is not an absolutely correct statement. There are some DNA, there are

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DNAs that contain uracil. And I would suggest you go to another reference other than just that one. There is uracil in DNA.
THE COURT: That's all.
MR. SHEFFLER: Thank you, your Honor.
THE VIDEOGRAPHER: Going off the record. The time is approximately 3:18.
- - - - -
Thereupon, Wigand Exhibit No. 36 was marked for purposes of identification.
- - - - -
Thereupon, the deposition was adjourned at 3:18 p.m.
- - - - -

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CERTIFICATE

I, Thomas F. Runfola, a Registered Professional Reporter, do hereby certify that I reported the deposition of Jeffrey S. Wigand, and that the foregoing transcript of such proceedings is a full, true and correct transcript of my stenotypy notes made to the best of my ability.

I do further certify that I was called there in the capacity of a Court Reporter, and am not otherwise interested in this proceeding.

_____
THOMAS F. RUNFOLA
Registered Professional Reporter

_____
DEANNA S. CURTIN
Registered Professional Reporter

Notary Public for the State of Kentucky.

My Commission Expires: _____

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